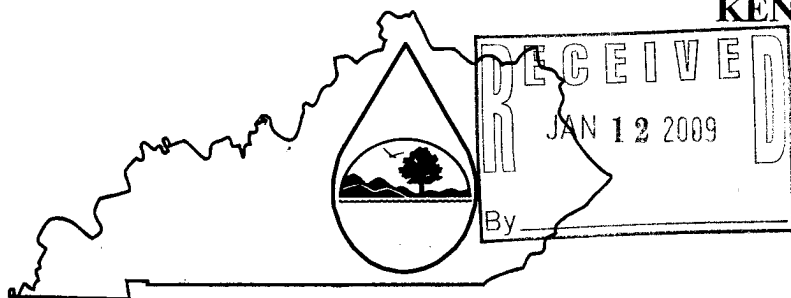


KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT APPLICATION



This is an application to: (check one)

- ☒ Apply for a new permit.
- ☐ Apply for reissuance of expiring permit.
- ☐ Apply for a construction permit.
- ☐ Modify an existing permit.

Give reason for modification under Item II.A.

A complete application consists of this form and one of the following:

Form A, Form B, Form C, Form F, or Form SC

For additional information contact:

KPDES Branch (502) 564-3410

CK 100-

I. FACILITY LOCATION AND CONTACT INFORMATION		AGENCY USE	0107824
A. Name of Business, Municipality, Company, Etc. Requesting Permit Home of the Innocents, Inc			
B. Facility Name and Location		C. Primary Mailing Address (all facility correspondence will be sent to this address). Include owner's mailing address (if different) in D.	
Facility Location Name: Home of the Innocents		Facility Contact Name and Title: Mr. <input checked="" type="checkbox"/> Ms. <input type="checkbox"/> Gordon Brown, President & CEO	
Facility Location Address (i.e. street, road, etc., not P.O. Box): 1100 East Market Street		Mailing Address: 1100 East Market Street	
Facility Location City, State, Zip Code: Louisville, KY 40206		Mailing City, State, Zip Code: Louisville, KY 40206	
D. Owner's name (if not the same as in part A and C):		Facility Contact Telephone Number: 502-596-1000	
Owner's Mailing Address: same		Owner's Telephone Number (if different):	

II. FACILITY DESCRIPTION

- A. Provide a brief description of activities, products, etc: The Home of the Innocents is a 501(c)(3) Public Charity whose mission is to reach out and advocate for children, youth and their families, by providing care and shelter during periods of critical times. The Home serves up to 300 children a day and almost 2,200 children a year through its two service divisions. The facility currently has three main structures, but is undertaking an expansion including five new structures. This permit application is for facilities only in the five new structures. Those structures are referred to as 1) the Advanced Therapy Center, 2) The Shelter Cottage, 3) The Childrens classroom Center, 4) the Pediatric Care Center, and 5) the Comprehensive Assessment Center. See attached Figure 1.
- B. Based on engineering studies, the most feasible approach to providing heat transfer to the heating, ventilation, and air-conditioning (HVAC) systems in the five new buildings is through the use of geothermal heat transfer. Stated more simply, native groundwater will be used as a heat transfer fluid in the heat exchange units then discharged into the nearby Beargrass Creek through the existing storm drain system. The groundwater can be used as a source of cool water for air conditioning during the hot periods of the year, or as a source of heat for cooler months when the heater will be used in the buildings. The groundwater will be pumped from two new nearby water wells and conveyed to the buildings through new piping. After the heat transfer process is complete, the groundwater will be discharged into the existing storm drain system which ultimately discharges into Beargrass Creek. We are in discussions with Louisville Metropolitan Sewer District to permit the discharge to their facilities; those discussions are ongoing but expected to be complete with 45 days.
- C. The extracted groundwater will be used as non-contact cooling water, never coming into contact with any other processes, chemicals, or materials except the conveyance piping. A moderate temperature change (less than or equal to approximately +/- 20 ° F) will be the only alteration to the groundwater following extraction from the wells. However, we anticipate the water to be at local ambient temperatures before discharge into Beargrass Creek due to the time spent in the existing storm drain system prior to discharge into the creek. We have not submitted a proposed sampling plan as part of this application but plan to prepare and submit a proposed plan pending further discussions with Division of Water personnel.

B. Standard Industrial Classification (SIC) Code and Description			
Principal SIC Code & Description:	8322 Individual and Family Social Services		
Other SIC Codes:	8361 Residential Care		

III. FACILITY LOCATION	
A. Attach a U.S. Geological Survey 7 1/2 minute quadrangle map for the site. (See Figure 2)	
B. County where facility is located: Jefferson	City where facility is located (if applicable): Louisville
C. Body of water receiving discharge: Beargrass Creek	
D. Facility Site Latitude (degrees, minutes, seconds): 38° 15' 6"	Facility Site Longitude (degrees, minutes, seconds): 85° 43' 54"
E. Method used to obtain latitude & longitude (see instructions): USGS Topo map coordinates and online locator website	
F. Facility Dun and Bradstreet Number (DUNS #) (if applicable): NA	

IV. OWNER/OPERATOR INFORMATION	
A. Type of Ownership: <input type="checkbox"/> Publicly Owned <input checked="" type="checkbox"/> Privately Owned <input type="checkbox"/> State Owned <input type="checkbox"/> Both Public and Private Owned <input type="checkbox"/> Federally owned	
B. Operator Contact Information (See instructions)	
Name of Treatment Plant Operator: Home of the Innocents, Inc	Telephone Number: 502-596-1000
Operator Mailing Address (Street): 1100 East Market Street	
Operator Mailing Address (City, State, Zip Code): Louisville, KY 40206	
Is the operator also the owner? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the operator certified? If yes, list certification class and number below. Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Certification Class:	Certification Number:

V. EXISTING ENVIRONMENTAL PERMITS		
Current NPDES Number: None	Issue Date of Current Permit:	Expiration Date of Current Permit:
Number of Times Permit Reissued:	Date of Original Permit Issuance:	Sludge Disposal Permit Number:
Kentucky DOW Operational Permit #: None	Kentucky DSMRE Permit Number(s):	

Which of the following additional environmental permit/registration categories will also apply to this facility?

CATEGORY	EXISTING PERMIT WITH NO.	PERMIT NEEDED WITH PLANNED APPLICATION DATE
Air Emission Source	None	
Solid or Special Waste	None	
Hazardous Waste - Registration or Permit	None	

VI. DISCHARGE MONITORING REPORTS (DMRs)
--

KPDES permit holders are required to submit DMRs to the Division of Water on a regular schedule (as defined by the KPDES permit). Information in this section serves to specifically identify the name and telephone number of the DMR official and the DMR mailing address (if different from the primary mailing address in Section I.C).

A. DMR Official (i.e., the department, office or individual designated as responsible for submitting DMR forms to the Division of Water):	Mike Obrien - CFO
DMR Official Telephone Number:	502-596-1000

B. DMR Mailing Address:	
<ul style="list-style-type: none"> Address the Division of Water will use to mail DMR forms (if different from mailing address in Section I.C), or Contact address if another individual, company, laboratory, etc. completes DMRs for you; e.g., contract laboratory address. 	
DMR Mailing Name:	
DMR Mailing Address:	
DMR Mailing City, State, Zip Code:	


VII. APPLICATION FILING FEE

KPDES regulations require that a permit applicant pay an application filing fee equal to twenty percent of the permit base fee. Please examine the base and filing fees listed below and in the Form 1 instructions and enclose a check payable to "Kentucky State Treasurer" for the appropriate amount (for permit renewals, please include the KPDES permit number on the check to ensure proper crediting). Descriptions of the base fee amounts are given in the "General Instructions."

Facility Fee Category:	Filing Fee Enclosed:
501(c)(3)	\$100

VIII. CERTIFICATION

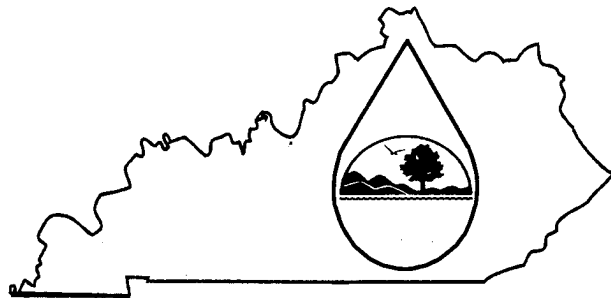
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME AND OFFICIAL TITLE (type or print):	TELEPHONE NUMBER (area code and number):
Mr. <input checked="" type="checkbox"/> Ms. <input type="checkbox"/> Gordon Brown, President & CEO	502-596-1000
SIGNATURE 	DATE: 1-8-2009

Return completed application form and attachments to: KPDES Branch, Division of Water, Frankfort Office Park, 14 Reilly Road, Frankfort, KY 40601. Direct questions to: KPDES Branch at (502) 564-3410

KPDES FORM SC

AI # 104679



KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT APPLICATION

A complete application consists of this form and Form 1.
For additional information, contact: KPDES Branch, (502) 564-3410.

NAME OF FACILITY: Home of the Innocents											
I. FACILITY DISCHARGE FREQUENCY				AGENCY USE	0	1	0	7	8	2	4
A. Do discharge(s) occur all year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (Complete Item IX for intermittent discharges.)											
B. How many days per week?				Seven							
II. A. Give the basis of design for sizing of the wastewater facility (see instructions): See Attachment A											
B. If new discharger, indicate anticipated discharge date:					July 2009						
C. Indicate the design capacity of the treatment system:					1.44 MGD						

III. Outfall Location (see instructions)

Outfall (list)	LATITUDE			LONGITUDE			RECEIVING WATER (name)
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	
1	38	15	15	85	43	40	Beargrass Creek
Method used to obtain latitude/longitude (i.e. GPS unit, USGS topographic map coordinates, etc.)				USGS Topo Maps and GPS			

IV. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES (see instructions)				
If wastewater other than domestic or sanitary is listed, complete page 4 in addition to page 1 and 2.				
OUTFALL NO. (list)	OPERATION(S) CONTRIBUTING FLOW		TREATMENT	
	Operation (list)	Avg/Design Flow (include units)	List treatment components	List Codes from Table SC-1
1	Non-contact Cooling Water	0.72 mgd	None	4-A, 4-F

V. Check the type(s) of wastewater discharged.

- ☐ Domestic (60% or more sanitary sewage)
 ☐ Oil field waste
☒ Noncontact cooling water
 ☐ Other (list):

VI. Does all water used at facility (except for human consumption) flow to a treatment plant? ☐ Yes ☒ No

VII. Discharge to other than surface waters. Check appropriate location:
Not Applicable

- ☐ Publicly-owned lake or impoundment Name of lake:
☐ Publicly-owned treatment works (POTW). Name of POTW:
☐ Land application of Effluent
☐ Surface injection (Check term and identify on map) ☐ lateral field; ☐ sinkhole; ☐ sinking stream; ☐ deep well
☐ Closed Circuit (Check appropriate term) ☐ Holding tank; ☐ Mechanical evaporation; ☐ Waste impoundment

VIII. Check the metals present in the discharge if applicable and indicate the quantity discharged per year. (Indicate units).

Not Applicable

<input type="checkbox"/>	Antimony	
<input type="checkbox"/>	Arsenic	
<input type="checkbox"/>	Beryllium	
<input type="checkbox"/>	Cadmium	
<input type="checkbox"/>	Chromium	

<input type="checkbox"/>	Copper	
<input type="checkbox"/>	Lead	
<input type="checkbox"/>	Mercury	
<input type="checkbox"/>	Nickel	
<input type="checkbox"/>	Selenium	

<input type="checkbox"/>	Silver	
<input type="checkbox"/>	Thallium	
<input type="checkbox"/>	Zinc	
<input type="checkbox"/>		
<input type="checkbox"/>		

IX. INTERMITTENT DISCHARGES (Complete this section for intermittent discharges.)

A. Number of bypass points:	None	(If bypass points are indicated, information below must be completed for each bypass.)
-----------------------------	------	--

Check when bypass occurs:	<input type="checkbox"/> Wet Weather	<input type="checkbox"/> Dry Weather
Give the number of bypass incidents	per year	per year
Give average duration of bypass	hours	hours
Give average volume per incident	1,000 gallons	1,000 gallons
Give reason why bypass occurs:		

B. Number of Overflow Points: None (If discharge is from an overflow point, the information below must be completed.)

Check when overflow occurs:	<input type="checkbox"/> Wet Weather	<input type="checkbox"/> Dry Weather
Give the number of overflow incidents:	per year	per year
Give average duration of overflow:	hours	hours
Give average volume per incident:	1,000 gallons	1,000 gallons

C. Number of seasonal discharge points	None
Give the number of times discharge occurs per year	
Give the average volume per discharge occurrence	(1,000 gallons)
Give the average duration of each discharge	(days)
List month(s) when the discharge occurs	

X. AREA SERVED (see instructions) Not Applicable

NAME	ACTUAL POPULATION SERVED
TOTAL POPULATION SERVED	

XI. COOLING WATER ADDITIVES AND THEIR COMPOSITIONS

Additive	Composition	Concentration (mg/l)
None		

XII. EFFLUENT CHARACTERISTICS

A. Indicate results of analysis for pollutants listed below.

POLLUTANT/PARAMETER	MAX DAILY VALUE	AVG DAILY VALUE	NUMBER OF SAMPLES
BOD ₅			
TOTAL SUSPENDED SOLIDS			
FECAL COLIFORM			
TOTAL RESIDUAL CHLORINE			
OIL AND GREASE			
CHEMICAL OXYGEN DEMAND			
TOTAL ORGANIC CARBON			
AMMONIA			
DISCHARGE FLOW	1.44 mgd	0.72 mgd	Estimate
PH	Ambient	6.9	1 (from test well)
TEMPERATURE (WINTER)	Ambient	Ambient	Estimate
TEMPERATURE (SUMMER)	Ambient	Ambient	Estimate

B. Frequency and duration of flow:

Constant, indefinite

XIII. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME AND OFFICIAL TITLE (type or print):

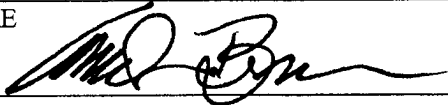
TELEPHONE NUMBER (area code and number):

Mr. X Ms. ☐ Gordon Brown, President and CEO

502-596-1000

SIGNATURE

DATE



1-8-09

Attachment A
KPDES Permit Application,
Home of the Innocents, Geothermal Discharge
December 11, 2008

Basis of Design for Sizing Wastewater Facility:

To start, this is not a wastewater facility but simply a non-contact cooling water application. Extracted groundwater will be used to heat or cool fluids within heat exchange units as an economical and environmentally friendly way to heat and cool buildings. After the extracted groundwater has passed through the heat exchange units (not contacting any other fluids or materials), it will be directed to the local storm drain system for ultimate discharge to the creek.

The source of water for the systems will be groundwater extracted from new wells located at the facility. Currently, two wells are planned at depths of 80 to 120 feet. These wells will be bored and installed in accordance with permits and regulations of the Kentucky Division of Water.

The design basis for this facility necessarily includes a wide range of flow rates, from zero gallons per minute (gpm) to a maximum site-wide usage of approximately 1000 gpm. This wide range is due to the use of the extracted groundwater as a heat exchange fluid. The heat exchange units in each building will "call for" or "demand" the volume of extracted groundwater necessary to maintain certain environmental conditions inside the buildings. Those inside conditions include, but are not limited to, temperature, humidity, minimum number of fresh-air exchanges, and other heating and cooling parameters. However, there are many factors both inside and outside the buildings that affect the internal operating parameters and could impact the volume of groundwater necessary to maintain operating conditions. These factors include human occupancy, day or night conditions, sunny or cloudy conditions, seasonal ambient temperatures, open windows, etc.

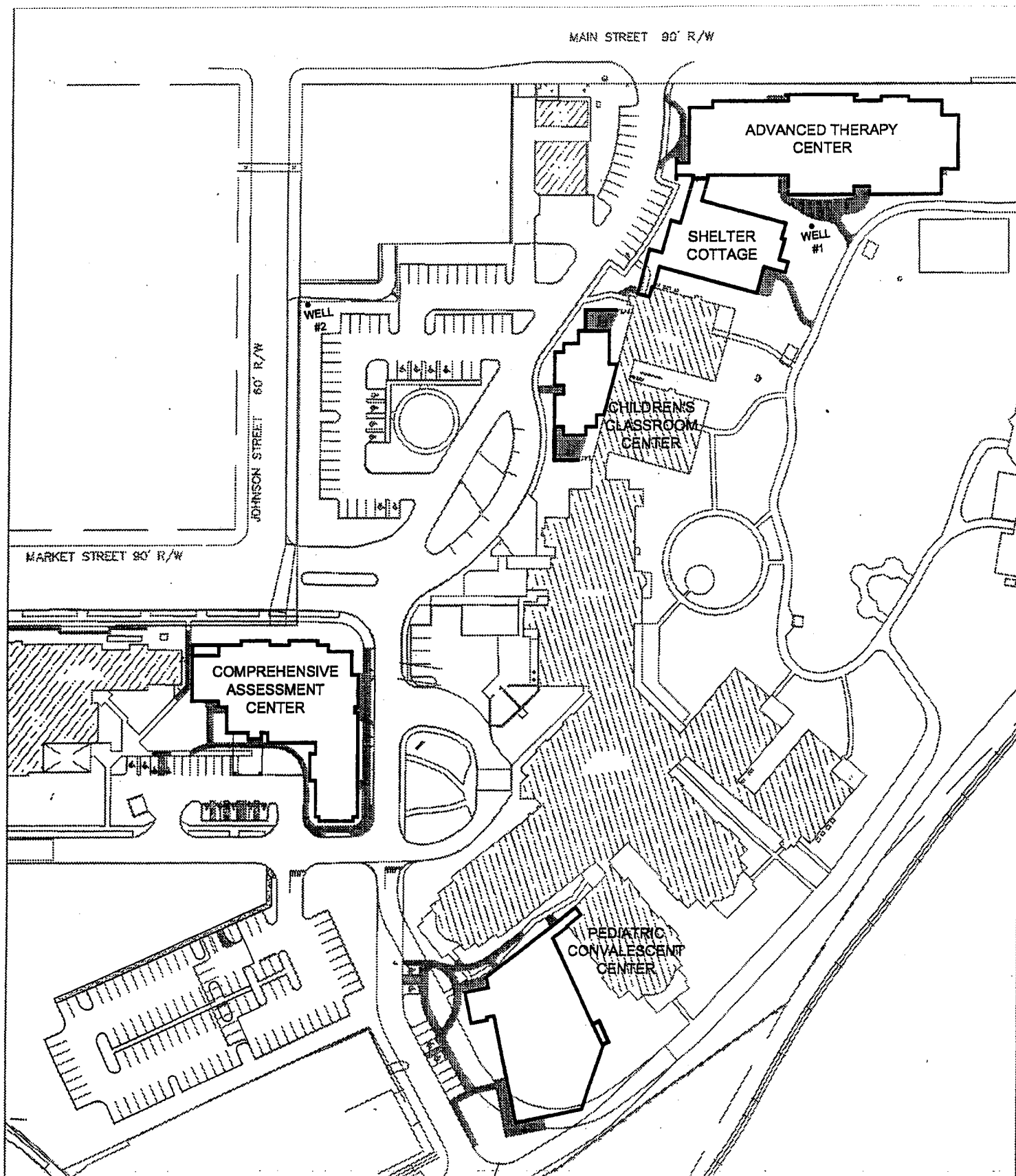
Consider two scenarios: At one time it could be a cold winter night, no computers or printers running, nobody coming or going from the buildings, and nobody working within the buildings. The next day could be warm and sunny, the building filled to full occupancy, doors and windows opening and closing randomly, and all printers, computers, copies and other office machinery operating. The volume of extracted groundwater used by the heating/cooling systems will be very different under these two operating conditions.

The flow volumes discussed below are design maximum volumes and the systems are rarely anticipated to operate at these volumes, and may average significantly less than half of these volumes. Until the systems have been turned on, tuned in, and operated for several months or years, the average or typical flow volumes will not be known. Therefore, maximum design volumes are presented as the only established basis at this time. For permit application purposes, half of the maximum is used as an estimate of the average design flow rate.

The current project includes the construction of five new buildings (see Figure 1). Three of these buildings will be operated by one heating, ventilation and air-conditioning (HVAC system), thus one set of heat exchange units. These buildings include the Advanced Therapy Center, the Shelter Cottage, and the Childrens Classroom Center. The HVAC system for these buildings has a maximum design throughput of 150 gpm or 0.22 million gallons per day (mgd).

The fourth building is known as the Pediatric Convalescent Center and the HVAC system for this building has a maximum design throughput of 350 gpm or 0.50 million gallons per day (mgd).

The fifth building is known as the Comprehensive Assessment Center and the HVAC system for this building has a maximum design throughput of 500 gpm or 0.72 million gallons per day (mgd).



LETTER OF TRANSMITTAL

To: KPDES Branch
Division of Water
200 Fair Oaks Lane
Fourth Floor
Frankfort, KY 40601

From: Michael Koch and Associates
Architects and Planners

908 Minoma Ave
Louisville, KY 40217
P 502.637.1537

Attn: Jory Becker

From: Michael Koch
Date: 1.09.2009
Project No: Home of the Innocents

WE ARE SENDING YOU ☒ ATTACHED ☐ UNDER SEPARATE COVER VIA _____ THE FOLLOWING ITEMS:

☐ DRAWINGS ☐ PRINTS ☐ PLANS ☐ SAMPLES ☐ SPECIFICATIONS ☐ CHANGE ORDER ☐ _____

COPIES	DATE	NUMBER	DESCRIPTION
1			KPDES Form 1 (signed 1-08-2009)
1			KPDES Form SC (signed 1-08-2009)
1	12-11-2008		KPDES Supplementary Attachment A
1			Figures
1	1-08-2009	9602	Permit Fee Check: Payable to KY State Treasurer \$100

☒ FOR APPROVAL

☐ APPROVAL AS SUBMITTED

☐ RESUBMIT _____ COPIES

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☐ SUBMIT _____ COPIES FOR DISTRIBUTION

☐ AS REQUESTED

☐ RETURNED FOR CORRECTIONS

☐ RETURN _____ CORRECTED PRINTS

☒ FOR REVIEW AND COMMENT

☐ _____

☐ FOR BIDS DUE _____

☐ PRINTS RETURNED AFTER LOAN TO US

Remarks:

KPDES Submittal for Home of the Innocents, 1100 East Market Street, Louisville, KY 40206, 502-596-1000

Questions regarding submittal, please contact Ken Hoffman, Kerr-Greulich Engineers 502-426-9457

Copies to: File; Ken Hoffman – Kerr-Greulich Engineers

Signed: *Michael Koch (new)*